

I CLAIM:

1. A device for treatment of a patient's intervertebral disc, the disc including a nucleus pulposus bounded by an annulus fibrosus, said device comprising:

a first and a second elongate probe for surgical insertion to two spaced apart treatment sites of the annulus fibrosus, each probe having a proximal portion and a distal portion,

wherein the distal portions of each probe comprises energy delivery means for delivering energy between the distal portions of the probes through the annulus fibrosus adjacent and between the two treatment sites.

2. The device as claimed in claim 1 wherein the energy delivery means is configured to provide a form of energy selected from a group consisting of: electrical current; microwave; ultrasound; and thermal energy.

3. The device as claimed in claim 2 wherein the electrical current has a frequency within the radio frequency range.

4. The device as claimed in claim 2 wherein the electrical current has a frequency of at least 20 kHz.

5. The device as claimed in claim 1 wherein the energy delivery means is operable to deliver energy sufficient to result in at least one of: increasing the temperature of the annulus fibrosus adjacent to at least one treatment

site to a level sufficient to contract collagen fibers; coagulating nerve structures; coagulating granulation tissue in fissures of the annulus fibrosus; and denaturing pain causing enzymes in fissures of the annulus fibrosus.

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6. The device as claimed in claim 1 wherein the energy delivery means is operable to maintain the temperature of the annulus fibrosus at or below 42°C and is sufficient to result in at least one of: modifying at least one function
10 of a nerve structure in the annulus fibrosus; and stimulating an increase in collagen production.

7. The device as claimed in claim 1 including an electrical impedance meter communicating between the distal
15 portions of each probe.

8. The device as claimed in claim 1 including an electrical impedance meter communicating between the distal portion of at least one probe and a dispersive electrode on
20 the surface of the patient's skin.

9. The device as claimed in claim 1 wherein at least one probe includes a cooling means for limiting an increase in temperature of tissue immediately adjacent the energy
25 delivery means of the at least one probe.

10. The device as claimed in claim 1 wherein an external elongate portion of at least one probe includes an electrically insulated sleeve.

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11. The device as claimed in claim 1 wherein at least one probe includes active shape control means for progressively deploying the trajectory of the distal portion of the at least one probe in three-dimensional space, as the distal
 5 portion is longitudinally slidably released from an outer end of an introducer tube.

12. The device as claimed in claim 1 wherein at least one probe includes at least one temperature sensor for
 10 monitoring the temperature of the at least one probe; a portion of the annulus fibrosus immediately adjacent the probe; and a portion of the annulus fibrosus distant from the probe.

13. The device as claimed in claim 1 wherein at least one probe includes a distal portion having a shape for directing the delivery of energy.

14. A device for providing percutaneous access to an
 20 intervertebral disc comprising an elongate hollow tube having an inner and an outer end, with a surface that is electrically insulated, having a temperature sensor near the outer end.

15. A method for treatment of an intervertebral disc, the disc including a nucleus pulposus bounded by an annulus fibrosus, said method comprising the steps of:
 i) inserting a first and a second intradiscal
 lesioning probe to respective spaced apart
 30 treatment sites for annulus fibrosus, each

probe having an energy delivery means located at a distal end thereof, the distal ends being inserted to the treatment sites; and

- 5 ii) delivering energy from an energy source through the energy delivery means to the annulus fibrosus adjacent and between the treatment sites.

10 16. The method as claimed in claim 15 comprising a step of measuring the impedance between the energy delivery means of the probes via an impedance monitor connected to the probes and delivering the energy in response to the measured impedance.

15 17. The method as claimed in claim 15 comprising a step of cooling the distal end of at least one intradiscal lesioning probe with a cooling means provided to the at least one intradiscal lesioning probe.

20 18. The method as claimed in claim 15 wherein the step of inserting, comprises inserting at least one of the intradiscal lesioning probes through an electrically insulated introducer tube that is inserted to one of the treatment sites.

25 19. An intradiscal probe for use with a second probe for treatment of a patient's intervertebral disc, the disc including a nucleus pulposus bounded by an annulus fibrosus, the probe comprising:

an elongate body for surgical insertion to a treatment site for the annulus fibrosus, the body having a proximal portion and a distal portion;

5 wherein the distal portion comprises energy delivery means for delivering energy between the distal portion of the probe and a distal portion of the second probe through the annulus fibrosus.

20. An intradiscal probe for treatment of a patient's intervertebral disc, the disc including a nucleus pulposus
10 bounded by an annulus fibrosus, the probe comprising:

an elongate body for surgical insertion to a treatment site for the annulus fibrosus, the elongate body having a proximal portion and a distal portion;

15 the distal portion comprising an impedance measuring means; and

an energy delivery means for delivering energy to the annulus fibrosus wherein the energy delivery means is configured to selectively deliver the energy in a desired direction.

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